

# Sicheng Ouyang

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## Skills

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- **Programming Languages:** Python, Java, C++, HTML/CSS, JavaScript, TypeScript
- **Tools/Frameworks:** Git, Flask, React, React Native, MySQL, WordPress, Microsoft Office Suite, LaTeX
- **Languages:** English (Fluent), Mandarin Chinese (Native), French (Basic)

## Experience

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### Advanced A-Level Study Website

Sep 2023 – Aug 2025

Co-Founder & Principal Software Development Engineer

China · Wuhan

- Built an A-level study exam preparation website using **WordPress**, **PHP**, and **MySQL**, deployed on **Tencent Cloud** with user login and SEO features, steadily attracting **1,000** daily active users and maintaining high uptime.
- Curated **50+** study notes and **20+** lecture recordings and organized course content using **WordPress**, improving learning resource structure and content accessibility for **200+** students and increasing user engagement.

### Tencent Music Entertainment Group 🎵

Jul 2024 – Aug 2024

Machine Learning Engineer

China · Shenzhen

- Evaluated 10 speech synthesis models and ran **20+** parameter experiments to improve vocal simulation quality.
- Integrated models and tuned alignment parameters, achieving a **20%** gain in vocal consistency.
- Produced an AI-generated music video to raise Alzheimer's awareness, gaining over **200,000** views.

### Maps Uncharted

Jul 2023 – Aug 2023

Software Development Engineer

China · Wuhan

- Developed a mobile android map application that visualizes user-visited locations using **TypeScript**, **React Native**, and the **Google Maps API**, receiving **50+** positive reviews upon launch.
- Optimized walking trail rendering by merging circles into simplified polygons, reducing storage footprint by **5%**, improving rendering performance, and lowering cloud storage usage by **10%**.

### Wuhan University of Technology

Jul 2023 – Aug 2023

Data Analyst

China · Wuhan

- Conducted handwriting recognition experiments by preprocessing hand-drawn samples (noise removal, binarization, vectorization) and building a exploratory dataset using **Python**, achieving **96%** recognition accuracy.
- Deployed a local deepseek using **Ollama**, used by **20** users to support research for the School of Physical Education.

## Projects

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### Chat WebSocket Demo 🗨️

- Delivered real-time chat by **FastAPI** + **WebSocket** backend with **PostgreSQL** and **Next.js/React** frontend.
- Secured user access by implementing **JWT auth** and SMTP email verification, preventing unverified access
- Improved system reliability and message consistency by designing paginated REST APIs with incremental WebSocket sync, and strengthening robustness through rate limiting and structured error code docs.

### Todo List Web & Desktop Application 📝

- Built a full-stack task management application using **React**, **Flask**, and **MySQL**, supporting full CRUD operations.
- Developed a cross-platform system tray desktop app packaged for both Windows and macOS.
- Fine-tuned BERT to enable natural language task input, parsing user input into **JSON** format for task creation.

### Personal Website 🌐 🗨️

- Built and deployed a production-grade platform using **Next.js**, **TypeScript**, **Tailwind CSS**, **MDX**, and **Vercel**, improving page load performance to **<0.5s LCP** and achieving **0 CLS**.
- Increased search discoverability by implementing custom **SEO metadata**, automated **sitemap generation**, domain **DNS configuration**, and submitting to Google/Bing Search Console.

### Nurel AI playground 🗨️ 📺

- Developed a web app with a group of 4 using **FastAPI** and **React** that allows users to train AI models with customizable hyperparameters and visualize training in real time, running locally for experimentation.

### Obsidian Oreo Theme Developer 🗨️

- Designed a custom Oreo-themed Obsidian theme using **HTML** and **CSS**, over **3,000** downloads on obsidian

### Resume Analyzer 🗨️

- Developed a resume evaluation tool using **Python**, **Flask**, and **React** and integrated the **OpenAI API** to generate structured resume feedback.

## Education

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### University of Waterloo, Canada

Bachelor of Software Engineering

Sep 2025 – Present

Relevant Courses: Data Structures, Algorithms, Linear Algebra, Object-Oriented Programming, AI fundamentals